POLICY ISSUES ON FISHERIES

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Laguna de Bay is a multi-use resource

- President Corazon Aquino’s administration:
  - (1986-1992)

  **DOMINANT USE IS FOR FISHERY**

- Current water quality classification:
  - (intended and beneficial use)

  Class C – for fishery

  **Aquaculture**

  **Open water or capture fishery**
Zoning and Management Plan or ZOMAP

• Initially implemented in 1983. (aquaculture was introduced in the early seventies)

• Considered by far as the most feasible management system for equitable allocation of the lake’s fishery resource.

• Fish pen belts and fish cage belts were delineated

• Provision of navigational lanes for easy access of municipal fishermen to their traditional fishing grounds.
Embodied in the 1996 Laguna de Bay Master Plan as per Executive Order 349 (1996)

- **Area allocation:**
  - **Fishpens** - 10,000 hectares
    - Corporation: 50 has.
    - Cooperative: 25 has.
    - Individual: 5 has.
  - **Fishcages** – 5,000 hectares
    - One (1) ha. per fishcage

- **Mandatory distance between structures**
  - Fishpen - 40 meters
  - Fishcage - 20 meters

- **No obstruction – 200 meters from the shore**
Profile of Fishpens and Fishcages in Laguna de Bay as of 30 August 2013

<table>
<thead>
<tr>
<th>Type of Aqua-Structure</th>
<th>Allocated Area (Has) per ZOMAP</th>
<th>Total Area Occupied</th>
<th>% of Allocated Area in the ZOMAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishpens</td>
<td>10,000</td>
<td>11,009.6</td>
<td>111 %</td>
</tr>
<tr>
<td>Fishcages</td>
<td>5,000</td>
<td>2,647</td>
<td>52.94 %</td>
</tr>
<tr>
<td>TOTAL</td>
<td>15,000</td>
<td>12,960</td>
<td>86.4 %</td>
</tr>
</tbody>
</table>
Aquaculture Production in Laguna de Bay CY 2012 (BAS)

### Municipal Production

<table>
<thead>
<tr>
<th>Province</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laguna</td>
<td>42,875</td>
<td>38,499</td>
<td>37,294</td>
<td>37,784</td>
<td>37,949</td>
</tr>
<tr>
<td>Rizal</td>
<td>37,809</td>
<td>41,907</td>
<td>45,327</td>
<td>47,053</td>
<td>49,518</td>
</tr>
<tr>
<td>Total</td>
<td>80,684</td>
<td>80,406</td>
<td>82,621</td>
<td>84,837</td>
<td>87,467</td>
</tr>
</tbody>
</table>

### Aquaculture Production

<table>
<thead>
<tr>
<th>Province</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laguna</td>
<td>11,920</td>
<td>11,804</td>
<td>10,926</td>
<td>10,826</td>
<td>10,598</td>
</tr>
<tr>
<td>Rizal</td>
<td>53,614</td>
<td>45,411</td>
<td>48,999</td>
<td>48,999</td>
<td>50,088</td>
</tr>
<tr>
<td>NCR</td>
<td>3,053</td>
<td>2,137</td>
<td>2,229</td>
<td>2,709</td>
<td>2,804</td>
</tr>
<tr>
<td>Total</td>
<td>68,587</td>
<td>59,352</td>
<td>62,154</td>
<td>62,534</td>
<td>63,490</td>
</tr>
</tbody>
</table>

Municipal, 87,467, 58%

Aquaculture, 63,490, 42%
# Total Fish Production in Laguna de Bay

**CY 2012 (BAS)**

<table>
<thead>
<tr>
<th>Province</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laguna</td>
<td>54,795</td>
<td>50,303</td>
<td>48,220</td>
<td>48,610</td>
<td>48,547</td>
</tr>
<tr>
<td>Rizal</td>
<td>91,423</td>
<td>87,318</td>
<td>94,326</td>
<td>96,052</td>
<td>99,606</td>
</tr>
<tr>
<td>NCR</td>
<td>3,053</td>
<td>2,137</td>
<td>2,229</td>
<td>2,709</td>
<td>2,804</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>149,271</strong></td>
<td><strong>139,758</strong></td>
<td><strong>144,775</strong></td>
<td><strong>147,371</strong></td>
<td><strong>150,957</strong></td>
</tr>
</tbody>
</table>

**NCR – from aquaculture only**

**Municipal Fisheries ???**

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ACS Borja
Surface Area of Laguna de Bay = 90,000 hectares

- Open Water: 86%
- Fishpens: 12%
- Fishcages: 2%

Baklad Kangkungan
Kangkong culture (*Ipomea sp.*) proliferates in areas designated as open areas in accordance with the ZOMAP.
Baklad (fish trap)

- Fishing method even before the advent of aquaculture
- No policy on baklad operation; no designated areas
The ZOMAP (1996) and
the Fisheries Code of 1998 (RA 8550)
SEC. 51. License to Operate Fish Pens, Fish Cages, Fish Traps and Other Structures for the Culture of Fish and Other Fishery Products

“That not over ten percent (10%) of the suitable water surface area of all lakes and rivers shall be allotted for aquaculture purposes……. and the stocking density and feeding requirement shall be controlled and determined by its carrying capacity;

Provided, further, that fish pens and fish cages located outside municipal waters shall be constructed and operated only within fish pen and fish cage belts designated by the Department and after corresponding licenses therefore have been secured and the fees thereof paid.”
CARRYING CAPACITY??

for a single use or purpose – e.g. fisheries

FOR A MULTI-USE RESOURCE ???

Thresholds:
Amount of wastes it can absorb and treat
Optimum lake level to meet the demands of the various users, etc

From 15,000 has. to 9,000 has.
Snail Dredging

Fishing boat being used for snail dredging

Otter board with fine mesh net
About 2 tons of snails can be loaded in one fishing boat

Ready for transport to Bulacan and Pampanga
Illegal fishing
RA 8550:
The Secretary of Agriculture, upon the recommendation of BFAR Director, may:

Rule 9.1. Establishment of Closed Season

*Issue the appropriate FAO declaring a closed season regulation in a specific area, based on the findings of stock assessment studies, biological studies, other research studies or best available evidence;*

Rule 9.3. Closed Season in Municipal Waters

*Include closed season regulations in waters under the jurisdiction of special agencies, municipal waters and bays, and/or other areas reserved for the use of the municipal fisherfolk upon the concurrence and approval or recommendation of such special agency and the concerned LGU and FARMC, in which case the concerned LGUs or special agencies shall, through appropriate municipal fisheries ordinance or resolution, cease to issue license/permits for fisheries activities in municipal waters and bays in closed area.*
SEC.10. Introduction of Foreign Aquatic Species

No foreign finfish, mollusk, crustacean or aquatic plants shall be introduced in Philippine waters without a sound ecological, biological and environmental justification based on scientific studies subject to the biosafety standard as provided for by existing laws: *Provided, however, That* the Department may approve the introduction of foreign aquatic species for scientific/research purposes.
INTRODUCTION OF INVASIVE ALIEN SPECIES

- Janitor Fish
- Knife fish
- Soft-shelled turtle and snapping turtle
Where’s the water?

HYPEREUTROPHIC !!
Codex / Food and Agriculture Organization (FAO) regulation limit is 2 mg/kg Cadmium in fish.

Codex / Food and Agriculture Organization (FAO) regulation limit is 1 mg/kg Chromium in fish.
Concentration of Heavy Metals in Fish

Collected December 8, 2009

Codex / Food and Agriculture organization (FAO) regulation limit is 0.5 mg/kg Total Mercury in fish

Legend:
Fish:
Kanduli – Manila Sea Catfish
Big Head – Big Head Carp
Tilapia – St. Peter’s Fish
Bangus – Milkfish

Area:
CB (IFP) – Central Bay, Inside Fishpen
CB (OFP) – Central Bay, Outside Fishpen
WB (IFP) – West Bay, Inside Fishpen
WB (OFP) – West Bay, Outside Fishpen
EB (OFP) – East Bay, Outside Fishpen
water samples from Laguna de Bay and tributary rivers
RISK COMMUNICATION!

Apprehension of Fishermen and Aquaculture Owners
KEY QUESTIONS

Laguna de Bay contributes:

_____ % to the total fish production in the region

_____ % to the total fish production in the country

PHP value?

Contribution to the economy?

CHALLENGING QUESTION:

WITH OR WITHOUT FISHPENS AND FISHCAGES?????
“Maraming Salamat Po!”

THANK YOU VERY MUCH!